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USSR Report

CONSTRUCTION AND RELATED INDUSTRIES



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USSR REPORT

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CONTENTS

CONSTRUCTION PLANNING AND ECONOMICS

Gosstroy First Deputy Chairman Deminov on New Norms, Prices (A. Deminov; EKONOMICHESKAYA GAZETA, No 15, Apr 84)	1
Improving Management of Construction in BSSR (V. G. Yevtukh; PROMYSHLENNOYE STROITEL'STVO, No 3, Mar 84)	6

AGRICULTURAL CONSTRUCTION

Deputy Minister on Rural Construction in RSFSR (O. Poteryakhin; STROITEL'NAYA GAZETA, 23 Mar 84)	15
KaSSR Gosstroy Official on Development of Rural Settlements (Anatoliy Vasil'yevich Borisov Interview; SEL'SKOYE KHOZYAYSTVO KAZAKHSTANA, No 3, Mar 84)	19

HOUSING CONSTRUCTION

RSFSR Deputy Minister on Individual, Cooperative Housing (O. Poteryakhin; SEL'SKOYE STROITEL'STVO, No 3, Mar 84) ...	23
Defects in Housing Construction Discussed (A. Alekseyev; STROITEL'NAYA GAZETA, 4 Apr 84)	29
Figures for Residential Housing Construction Given (STROITEL'NAYA GAZETA, 2 Mar 84)	34
Multistory Residential Housing in Areas of Seismic Activity (G. Iskhodzhanova; NARODNOYE KHOZYAYSTVO KAZAKHSTANA, No 1, Jan 84)	39

CONSTRUCTION MACHINERY AND EQUIPMENT

Briefs

New Excavators	41
New Foundation Technique	41
Mobile Concrete Mixer	41

CONSTRUCTION METHODS AND MATERIALS

Exposition Highlights New Construction Techniques (ZHILISHCHNOYE STROITEL'STVO, No 2 Feb 84)	42
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Briefs

Reticulated Dome	44
Concrete Additive Saves Materials	44
Wall Materials Machinery Plant	45
Lavsan Bitumen for Rural Roads	45

CONSTRUCTION PLANNING AND ECONOMICS

GOSSTROY FIRST DEPUTY CHAIRMAN DEMINOV ON NEW NORMS, PRICES

Moscow EKONOMICHESKAYA GAZETA in Russian No 15, Apr 84 p 8

[Article by A. Deminov, first deputy chairman of Gosstroy USSR: "New Estimate Norms and Prices"]

[Text] The effective use of prices as an instrument of the planned development of the socialist economy, and also the further perfecting of the system of price formation represent one of the most important conditions for shifting the economy, including construction, onto an intensive path of development. On 1 January 1984 new estimate norms and prices were introduced in construction. What was the reason for this, and what has to be done for their effective use in the practice of construction work?

The estimate prices previously in effect were introduced on 1 January 1969. In recent years they had simply become obsolete and had ceased to reflect socially necessary expenditures and the requirement that production be economical. This situation had been influenced by such factors as the development of scientific and technological progress, the production and use of new output, a change in the conditions of construction, and increased demands for environmental protection.

In recent years, as is known, there have been changes (as a rule, in an upward direction) in the wholesale prices for a number of materials consumed in construction—ferroconcrete products, brick, and rolled ferrous metals. The additional expenditures caused by this were not compensated by clients, but were calculated into the assignments to reduce the cost of construction and installation work and into the profits plans of contracting organizations. Important changes have occurred in the location of construction areas, and this has been reflected in the transportation schemes of freight shipments for construction. The amount of construction in rural areas, and in the areas of Siberia, the Far East, and the Far North has increased.

All of these factors have led to additional expenditures and have influenced a decrease in the profitability and profits of construction organizations. Thus, whereas in 1975 the profitability of contracting construction organizations (not counting other work and capital repairs) came to 12.07 percent,

and in 1980 to 6.25 percent, in 1982 this indicator had fallen to 5.3 percent, which is lower than the planned accumulations norm.

Of course, it would be incorrect to explain the decrease in profitability in construction solely in terms of the influence of price-forming factors. This process is being negatively influenced by important shortcomings in the organization of labor and of general work at construction sites, in estimate planning work, and in the planning and management of capital construction. The elimination of these shortcomings represents a significant reserve for increasing production efficiency.

In order to ensure the shift to the new estimate norms and prices in construction, Gosstroy USSR, working jointly with the ministries and departments and with the Councils of Ministers of the union republics, has prepared a new estimate normative base which is necessary for defining all of the elements of the estimated cost of construction. It consists of more than 150 collections of estimate norms, prices, and cost sheets for construction work and for the installation of industrial equipment. New norms for overhead expenditures and planned accumulations in construction have been developed and approved.

The creation of collections of unified area cost sheets has been completed. They are used for determining the estimated cost of all types of construction which is performed in a concrete area of the country.

On the basis of the new estimate normative documents, in May 1983 Gosstroy USSR approved change indices for the estimated cost of construction and installation work and other outlays in the branches of the economy and the branches of industry.

Using these indices, Gosplan USSR has provided the ministries and departments with amended assignments for the State Economic and Social Development Plan of the USSR for 1984. Corresponding amendments have been made by the Ministry of Finance USSR in the State Budget.

Ministries and departments now have the task of rapidly providing enterprises, organizations, and construction sites with amended assignments for capital investment ceilings, construction and installation work, construction commodity output, contracting work volumes, profits, and other plan indicators in the new prices.

It is very important to complete the amendment of title lists and internal title lists of construction projects more rapidly, and to bring about the conclusion of contracting contracts for capital construction and of the supplementary agreements that go with them.

The amendment of the plans and the recalculation of estimates create a good basis for increasing the reliability and stability of the estimated cost of construction, for a more accurate composition of start-up complexes, and for an improvement of the planning of capital investments.

A check of the recalculation of documentation which was conducted by Gosstroy USSR, Gosplan USSR, and Stroybank USSR has shown that the summary estimate calculations of the cost (summary estimates) of the construction projects which are included in this year's plan have for the most part been recalculated in the new prices in accordance with the indices approved by Gosstroy USSR. However, in a number of cases there has been lagging.

For example, as of today only around 65 percent of the estimates for projects which are being completed this year has been recalculated.

True, there is a special feature here: their recalculation is being performed not on the basis of the indices, but directly on the basis of the new estimate norms and prices, and this makes the work somewhat more difficult. But delays cannot be justified by referring solely to difficulties. It has to be said outright that in certain ministries and departments there is an underestimation of this major economic measure which is very important for our economy. A substantial lagging in the recalculation of project estimates has been permitted to occur in the Ministry of Automotive Industry, Ministry of Gas Industry, Ministry of Machine Building for Animal Husbandry and Fodder Production, Ministry of Petroleum Industry, Ministry of Chemical and Petroleum Machine Building, the USSR Ministry of Industrial Construction, the USSR Ministry of Heavy and Transport Machine Building, and in a number of republics.

Unfortunately, the preparation of estimate documents for projects which are located in the areas of the Far North and in areas which are equated to them is being performed with great delays. Gosstroy RSFSR, the Magadan, Kamchatka, Sakhalin, Arkhangel'sk, and Tomsk oblispolkoms, the Khabarovsk krayispolkom, and the Council of Ministers of the Yakutsk ASSR should make every effort for the most rapid completion of the work on approving handbooks of unified cost sheets which have been "tied" to local conditions, and should provide planning organizations with them.

The USSR Ministry of Petroleum Industry, Ministry of Gas Industry, and Ministry of Geology have to take measures to complete the development of new estimate prices for petroleum and gas drilling work no later than 1 July.

It is very important that the shift to new estimate norms and prices in construction be carried out without losses for the State Budget.

Unfortunately, there are cases of violations of proper procedure. Thus, according to the data of Stroybank USSR, funds in the amount of 200,000 rubles for the payment of additional expenditures connected with increasing the wages of average-pay categories of workers in construction were included in the estimate documents for expanding the Serdobsk Machine Building Plant of the Ministry of Automotive Industry. The same kind of violation was committed in the recalculation of the summary estimate for an expansion of the tailings enterprise and circulating water supply system in order to maintain the capacities of the Krivoy Rog Mining and Concentration Kombinat

of the Ministry of Ferrous Metallurgy Ukrainian SSR. The excess funds here exceeded a half million rubles.

As a result of an unwarranted increase in expenditures for shared participation, the estimated cost of the construction of the Novovolynsk Special Industrial Equipment Plant of the Ministry of Electrical Engineering Industry was overstated by 200,000 rubles. Expenditures amounting to 106,000 rubles which had previously been excluded from the approved plan because of criticisms by the financing bank were illegitimately included in the summary estimate of the Moldavian State Regional Electric Power Station.

Such facts indicate that the ministries and departments have to strengthen their supervision of the observance of the established procedure for recalculating estimates for construction; that is, they must not permit the inclusion in planning estimates of additional projects, operations, and outlays, and the making of other changes which are not connected with the use of the new estimate norms and prices. The USSR Council of Ministers has established that the leaders of ministries and departments bear personal responsibility for violations of the recalculation procedure.

Gosstroy USSR, Stroybank USSR, and Gosbank USSR will conduct a check directly at enterprises, construction sites, and planning organizations of the punctuality and correctness of the recalculation of documents. If it is discovered that the estimates of construction projects have had included in them additional work projects and expenditures, and that an increase in estimated cost which is not directly connected with the recalculation of estimates has been permitted, the financing of such construction projects will be halted.

In the recalculation of estimate documents instances are encountered when the estimated cost of construction and installation work for individual projects which has been recalculated in accordance with the new estimate norms and prices exceeds the cost which is determined on the basis of the indices. The financing of work on such projects will be performed in the first half of 1984 on the basis of estimated cost which has been determined with regard to the indices, and subsequently there will be an amendment of the payments for work performed according to estimates which have been recalculated on the basis of the new estimate norms and prices.

The ministries and departments have been granted the right to redistribute in July of this year capital investment ceilings and financing plans for individual construction sites and projects where there have been deviations in the results of the recalculation of project estimates on the basis of the new estimate norms and prices from the cost determined on the basis of the indices. The redistribution is to be performed within the limits of the capital investments for ministries and departments which were approved for 1984.

After the completion within the established schedule of the recalculation of the estimated cost of construction and installation work, the ministries and departments have to generalize the results of this work and present Gosstroy

USSR, Gosplan USSR, the Ministry of Finance USSR, Stroybank USSR, and Gosbank USSR before 15 June 1984 with the summary data on the change in the level of estimated costs for the branches of the economy and industry.

The introduction of the new estimate norms and prices will bring about, on the basis of a fuller compensation of the costs of construction work, an increase in the profitability of contracting organizations, which, in combination with the organizational and technical measures being carried out to increase efficiency, will create the necessary conditions for strengthening and developing cost accounting in construction, and for the realization in the branch (on the basis of the decisions of the December (1983) and February (1984) Plenums of the CPSU Central Committee) of the complex of measures to expand the rights of construction organizations and increase their responsibility for their work results.

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CONSTRUCTION PLANNING AND ECONOMICS

IMPROVING MANAGEMENT OF CONSTRUCTION IN BSSR

Moscow PROMYSHLENNOYE STROITEL'STVO in Russian No 3, Mar 84 pp 3-6

[Article by V. G. Yevtukh, chairman of the Belorussian SSR Gosstroy:
A Comprehensive Approach to Improving the Administration of Construction
Production in the Republic"]

[Text] "The intensification and rapid assimilation into production of the achievements of science and technology, the implementation of major comprehensive programs--all this must in the final analysis raise the production forces of our society to a qualitatively new level." (From a speech by Comrade K. U. Chernenko, general secretary of the CPSU Central Committee, at the regular February (1984) Plenum of the CPSU Central Committee).

(From the editor) It should be noted that at the current developmental phase of socialist public production as affected by scientific and technological progress and the steady growth of labor productivity and the scale of production, the managerial activity problems of production associations are constantly changing, resulting in the need for an improvement in administration structures.

Administration improvement is becoming an independent form of administrative activity. Subdivisions specializing in the improvement of administration systems have been set up in industry and in production associations (the first work experience of subdivisions such as these is discussed, for example in L. I. Lekhtsiyer's book "Sluzhba sovershenstvovaniya upravleniya v ob'yediniyakh" [Administration Improvement Service in Associations], Moscow, Ekonomika, 1983).

Wishing to cooperate in the improvement of administration in the construction branch--one of the chief industries in the national economy--the editorial board of the journal PROMYSHLENNOYE STROITEL'STVO decided to make

this a one-topic issue, devoted to questions of improved administration in construction. Many articles on this subject have been published in the order of discussion.

We would also like to direct the readers' attention to an article by USSR Deputy Minister of Construction S. Ye. Yakubants, "Reflections on a Trust," published in the newspaper PRAVDA (January 19, 1984).

The experience of the Belorussian SSR convinces us that the most rapid accomplishment of our party's progress in improving the effectiveness of capital construction is possible under the condition of a comprehensive approach to the improvement of industry administration, keeping in mind organizational, economic and technical aspects. The Belorussian Communist Party Central Committee and the republic government are focusing the activity of construction and other interested ministries and departments on a solution to this problem.

Following a decree of July 12, 1979 of the CPSU Central Committee and the USSR Council of Ministers entitled "Improving Planning and Strengthening the Effect of the Economic Mechanism on Increased Production Efficiency and Work Quality," measures for improving the administration of capital construction are being implemented in the republic, based on expansion of the rights of construction ministries and departments and an increase in their responsibility for achieving final work results while expending fewer resources. Their attention is being focused to a greater degree on questions of scientific and technical progress, the development of a material and technical base, and the strengthening of intersectorial communications. Construction production technology administration functions are transmitted to basic cost accounting links, which are gradually organizing production construction and installation associations or combined trusts. Construction organizations are thereby consolidated, and optimal technological specialization is implemented within their framework. Industry specialization is introduced at the level of such major construction and installation trusts and associations, conducive to opportunities for the most effective combination of industrial and territorial administrative principles.

Improvement of the construction organization organizational structures is accomplished through a harmonious combination of specialization and integration, taking into consideration specific regional conditions and types of construction, optimal correlation of the principles of the indivisibility of construction production technology, internal and external technological specialization, and a guarantee of party and economic management unity.

On the whole, improvement in construction production administration is characterized by a transition from forms of organization and structures based on allocation of rights and responsibility according to individual functions, to administrative structures in which different functions are integrated, subject to the attainment of the final goal—a timely

implementation of production capabilities and objectives with lesser resource expenditures and high work quality. The organizational structure of the Minsk Industrial House-Building Production Association [MPOID], created in 1976 within the framework of the BSSR Minpromstroy [Ministry of Industrial Construction] can serve as an example in this regard. This association provides up to 70 percent of the housing construction program in Minsk and completes approximately 96 percent of the construction and installation jobs with its own resources.

The experience of this integrated structure's functioning demonstrated its high reliability. For this period the annual capacity of the association as compared to total capacity for housing construction enterprises prior to their integration into the new structure increased from 500,000 to 700,000 square meters of housing area. The increase was due to the implementation of technical innovations as well as to basically more extensive organizational capacities of the association's structure. Specifically, more favorable conditions were created for two-year housing construction planning, smooth transition in making houses operational, overall microrayon development, active manipulation of resources, and clear technological specialization by the association's structural links. In the case of a major integrated structure such as MPOID, the problem of raising the technical level of production and balanced administration of association activity is solved much more effectively by using economics and mathematical methods, including the Automated System for Administering Technological Processes [ASUTP]. Year after year the association does its job of putting projects into service with high work quality.

The experience of improving the organizational forms of construction administration in the republic has shown with total clarity that the necessary output is possible only when other aspects of the economic mechanism are also improved, including such an important aspect as economical administration procedures.

The CPSU Central Committee and USSR Council of Ministers decree "Improving Planning and Strengthening the Effect of the Economic Mechanism on Increased Production Efficiency and Work Quality" plays a definite role in the solution to this problem. As far as construction is concerned, it is known that before this basic document came to light its important points were tested experimentally at the BSSR Ministry for Industrial Construction and the Ministry of Installation and Special Construction Work. Analysis of the production economic activity of these ministries made it possible to evaluate the positive as well as the negative factors influencing work results and to plan ways to further accomplish economic reform in area of republic construction.

As a result of the transition to planning and evaluation of the work of contract organizations for commodity construction production and the introduction of a new system of economic levers and stimuli, 37 more projects were put into operation in the BSSR Minpromstroy from 1976-1980 than during the preceding five-year plan, and the period for their construction was reduced by an average 13%.

At the same time, in the course of the experiment a number of its positions could not be carried out with complete success, and it became obvious that even at the developmental phase of the basic documents certain important factors determining capital investment effectiveness were underestimated. One of these is economic stimulation for the reducing resource expenditure in construction. At the same time, it is known that a transition to intensive methods of economic management proposes the attainment of higher end results by means of a technologically founded reduction in the expenditure of material-technical, fuel-energy and labor resources.

At present, the main participants in the construction process--the planning and contract organizations--are not fully interested from an economic point of view in reducing these expenditures, particularly at the planning stage. This is explained by the fact that the cost of a project depends not so much on how this project meets certain public needs as it does on construction decisions built into the project and the amount of materials and labor resources input stipulated by these decisions. Under these circumstances, the existing system for the planning and economic evaluation of work by planning and contract construction and installation organizations is made to depend directly on the projected cost of construction projects: the higher this cost, the more the economic interests of the builders will be satisfied; reduction in the cost of construction and installation work as a result of economic planning decisions, paradoxically, has a negative result on the results of their work. This is one of the main reasons for the slow reduction in the expenditure of metal, cement and other material resources per unit of ready construction production in republic contract organizations and those of the country as a whole.

By using a standard index relative to net production in construction production, the influence of materials intensiveness on increased labor productivity and the size of the wage fund is definitely eliminated. Meanwhile, the former system for calculating production volumes according to projected cost of construction and installation work, upon which many other important indices of contract organization work depend, is still being used. For this reason, builders are often not interested in coordinating effective planning decisions aimed at reducing the cost of projects being put into operation.

As of September 1982, an experiment was conducted in the republic to eliminate these negative manifestations of the economic mechanism. Its main goal is to reduce expenditure of resources and projected cost of construction and installation work by more extensive application of the achievements of science, technology and firsthand experience in the projects. This is the reason for enactment of a group of measures expected to generate economic interest on the part of planning and contract construction and installation organization workers and organization buyers and construction materials industry and construction industry enterprises in realizing planning decisions using the least amount of resources.

project decisions. Stable (or adjusted) prices in the final construction production are the basis of the experiment's economic mechanism. Under this term is meant consolidated projected cost of construction commodity production of a certain type, which remains unchanged throughout the five-year period. These prices reflect socially necessary expenses per unit of construction production, taking into consideration the underlying progressive level of production at a given phase. They are used not only in buyer estimates but also for planning contract and planning organizations work. The difference between the cost of the project at a stable price and the cost of construction and installation work production according to a working plan economic variant is a source of additional profit for the construction organization. After appropriate deductions in the state budget, this profit is distributed among the planning and contract organizations and buyers and becomes for them a source of real economic incentive.

At present, 57 planning and survey organizations are participating in the experiment, including all planning organizations located within republic territory and a number of institutes outside its boundaries. From the contractor side, the experiment included more than 80 construction associations, trusts and house-building combines, representing 18 ministries and departments.

The experiment covered planning and construction of 534 projects for industrial, transportation, agricultural, housing and other purposes, with projected value of construction and installation work at 524 million rubles, one-fifth of the annual republic construction volume.

The planning of 276 projects has already been completed. This includes 56 industrial, 173 civic housing, and 47 production, agricultural and other designations. Twelve million rubles, or 5.4 percent of the projected value of the construction and installation work has been saved in these projects. Metal expenditure has been reduced by 8520 tons and cement by 17,380 tons. Labor expenditure is reduced by 184.6 thousand man-days. In this case half of the money saved (6 million rubles) falls within the realm of industrial construction—its relative importance in the overall volume of construction and installation work was 11.7 percent. For civic housing projects economy stood at 1.8 percent total. This is explained by the fact that potential savings from plan improvement, already carefully worked out for them at the starting level, is extremely limited. Experience has shown, however, that the improvement of technical solutions according to standard plans, even in cases of a comparatively low relative savings can have extremely good results when the plan is used repeatedly and applied to specific projects.

Basic directions for improving efficiency in planning decisions under the conditions of the experiment are improving volume-planning and construction decisions and using effective high-quality materials and more efficient engineering plans. In certain cases, a technical change at the planning stage allows the building area to be reduced significantly, and even allows certain objects to be eliminated from the construction makeup. New methods for estimating the construction of walls, foundations, building floors and ceilings, bridge supports, and overpasses are being used extensively.

The important role of the appraisal agencies in conducting the experiment should be mentioned. They are carefully verifying the soundness of the new planning decisions and the reliability of economy estimates. For example, the republic Gosstroy Appraisal Administration did not accept a number of proposed solutions, inasmuch as they could have impaired the operational features of buildings and structures or because they called for the routine substitution of finishing materials.

Among the plans completed in accordance with the conditions of the experiment, manufacturing instructions for 176 projects have already been used in construction with 136 of them in the production phase; over 30 percent on the average of the total amount of construction and installation work is done according to these plans. Forty projects have already been put into operation with good and outstanding work quality. For some of them, accounts were paid in full as a result of the savings realized. After part of it was credited to the budget, the remaining sum was used as a bonus for participants in the experiment. First results from the experiment serve as the basis for the following conclusions.

The new economic mechanism has a more effective influence on a reduction in labor and material resources expenditures. Qualitatively new relationships between construction participants, particularly between planners and contractors, have come about under conditions of the experiment. Their joint creative effort promotes the acceleration of scientific and technical progress rates within the industry. There are grounds for concluding that the experimental mechanism meets the demands of the June (1983) CPSU Central Committee Plenum on the need for the development and application of a system of measures that would interest everyone in the promotion of all innovations and advances.

To further develop the experiment, we ask the USSR Gosstroy Economic Construction Scientific Research Institute to speed up work on a procedure for creating stable prices, with the intent to more fully reflect in it characteristics of production construction and reconstruction enterprises. Before stable prices can be developed, there is a need to expand the equivalent product lists. In order to guarantee a further increase in the technical and economic level of projects, it is necessary to increase relative expenses for planning and survey work, since under experimental work conditions a careful analysis of decisions and a careful search for more efficient ones is necessary, instead of being tied to model projects. In order to accelerate scientific and technological progress, provision must be made for the participation of scientific research institutes in the experiment, along with planning and technological organizations, construction ministries and departments (Orgtekhstroy and PKTB Trusts).

An integral element in the system for improving organizational and economic methods of administering construction production is the purposeful administration of scientific and technological progress. Experience has

shown that measures enacted in the republic to this end have noticeably activated the development of scientific and technological progress, as reflected in extensive assimilation of effective reinforced concrete construction, including centrifuged, prestressed, and light concrete economic methods for monolithic home building, low-operation and energy-saving technology, and the re-equipment of the construction industry, including implementation of automated systems for administering technological processes. These and other innovations have found their expression in a number of programs that have been realized in the republic. With their development the accent has been put not only on reducing resource expenditure but also on increasing labor productivity, this most important but unfortunately not always realized construction parameter.

Analysis of the dynamics of a change in labor productivity in construction made it possible to identify additional sources for an increase in this index. Due to the fact that their realization is involved with the participation of multiple collectives subordinate to various authorities and large expenditures of financial and material resources, the development of special comprehensive programs was necessitated. It should be mentioned in this regard that in capital construction target methods of program administration have a particular significance. It is a question of clear orientation toward the achievement of final goals with the best economic result on the basis of coordinated activity of not only the construction and installation organizations but also of the others, including "outside" participants in the investment process located beyond the framework of the departmental authority.

It has been shown in practice that if individual program executors are not subject to the authority of an organization-coordinator managing a program, then its controllability will be significantly lowered; therefore the hierarchical structure of comprehensive programs must be such that they are coordinated by the organization and that all executors active in the program must be within the sphere of its influence.

During the formation of comprehensive target programs, at the first stage the organization coordinator sets the tasks for the executors; the latter then refine them, adapting them to their own organizational, technical and resource capabilities. After this, the adjusted tasks are approved by the coordinator with the indispensable condition that these tasks provide the achievement of a final goal—for example the desired growth of labor productivity.

One of the pivotal programs developed with the aforementioned approach and also intended to improve capital construction efficiency was the comprehensive target program for raising the organizational technical level and increasing labor productivity in Belorussian SSR construction during the Eleventh Five-Year Plan. This program is a qualitatively new instrument, making it possible to more fully use the achievements of science and technology, to predict the basic directions for improving the organizational and technical level of construction and to determine the possibilities for their realization during the current period and in future

years. Through variation analysis, the program makes it possible to select measures offering the greatest effect, to provide planned intra- and interdepartmental cooperation of resources to achieve the stated goal, and to objectively evaluate the work of program participants.

Considering the comprehensive nature of the program, included as executors in addition to the construction and installation organizations and enterprises of the construction industry are the BSSR Ministry of the Construction Materials Industry, the Ministry of the Timber and Wood Processing Industry, educational, scientific-research and planning institutes and other organizations directly or indirectly affecting the achievement of the end result intended by the program—raising the organizational and technical level and increasing labor productivity. Taking into consideration the different authorities to which program executors were subject, the republic government designated BSSR Gosstroy as organization coordinator.

The program encompasses the following parameters for basic construction ministries and departments by years of the five-year plan: construction and installation work volumes; financial yield; increase in labor productivity; number of workers; number of workers, including those involved in manual labor; conditional reduction in the number of workers; reduction in weight of buildings and structures; economy of basic materials and fuel-energy resources; introduction of new and reconstruction of existing enterprises due to the production of effective materials, construction and mechanical facilities for builders; expenditures for program fulfillment; specific tasks of the ministries, departments, enterprises, and planning organizations in fulfilling program tasks; economic efficiency indices from quotas assimilated.

The measures are divided into 3 basic sections. The first includes tasks providing for an increase in the level of construction industrialization, expansion of the use of efficient materials, construction and parts with a high degree of plant availability. The second encompasses tasks which upon completion improve the level of mechanization of construction and installation work due to better use of existing technology, the assimilation of highly productive mechanical facilities for construction work, and construction load storage and stacking. The third includes tasks for improving the organization of labor productivity and administration in construction, the assimilation of advanced technology at the construction site, raising personnel qualifications, improving labor and everyday living conditions, consolidating personnel in production and creating stable collectives.

For effective administration of the target program, an organizational structure was worked out containing the following levels: BSSR Gosstroy, ministries (departments), associations and trusts, lower construction organizations, and brigades. An order was established for accounting and analysis of execution of tasks and program measures; the feasibility of rapid correction of the program as a function of changing conditions in construction production was determined.

A coding system for divisions, subdivisions, local programs, measures and tasks reflects their interrelationship and facilitates the transmission and accumulation of information and the feasibility of using the computer for accounting and control over the course of accomplishment of program tasks.

Realization of the comprehensive program made it possible to increase the rate of growth of labor productivity and to use material-technological and fuel-energy resources more wisely in construction. While in 1980 the increase in labor productivity in construction was 1.4 percent, in 1981 it was 1.7 percent, in 1982 2 percent and in 1983 it was 3.6 percent. From 1981-1983 approximately 17,000 workers were conditionally released, the weight of buildings and structures was reduced by almost 2 million tons, and a significant amount of materials and fuel-energy resources were economized.

At the same time, opportunities for increasing the effectiveness of construction production are not being fully realized in the republic. In order to more fully use existing resources the comprehensive program for raising the organizational and technical level and increasing labor productivity in Belorussian SSR construction has been refined for the basic construction ministries and departments (BSSR Minpromstroy, BSSR Minsel'stroy, BSSR Minmontazhspetstroy, BSSR Mindorstroy and Belmezhkokochozstroy) for 1984-1985, in which progressive domestic and foreign experience has found expression. Measures were enacted for the development of an economic experiment intended to further improve the economic mechanism in the industry for the purpose of increasing its effectiveness through wiser use of labor and material and technical resources and reducing planned construction cost.

For the remaining two years of the five-year plan, enactment of the planned measures makes it possible to save 118,000 tons of rolled metal, 356,000 tons of cement and 264,000 cubic meters of timber throughout the industry as a whole, as compared to the norms; to raise labor productivity in the aforementioned ministries and departments by 8.5 percent, to conditionally release almost 15,000 men, and for the 11th Five-Year Plan as a whole 32,000 men, or 19 percent of the total number of workers; to substantially reduce time periods for erecting projects and to increase work quality.

An approach such as this to the improvement of construction, in our opinion, fulfills the requirements of the December (1983) CPSU Central Committee Plenum in that "only a comprehensive, joint scrutiny of questions of improving the system of administration can solve the problem of more complete use of the advantages which are based in the socialist method of production." The accumulation of efforts in this direction is helping the most rapid realization of aims of the 26th Party Congress on improving the efficiency of capital construction and public production as a whole.

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AGRICULTURAL CONSTRUCTION

DEPUTY MINISTER ON RURAL CONSTRUCTION IN RSFSR

Moscow STROITEL'NAYA GAZETA in Russian 23 Mar 84, p 3

[Article by O. Poteryakhin, RSFSR deputy minister of agriculture: "A Long Way to a Remote Area"]

[Text] The solution to large-scale problems that was presented at the May and November (1982) and June and December (1983) plenums of the CPSU Central Committee, the Food Program for the country, is inseparably linked with strengthening the material and technical base of agriculture and, first of all, with the consistent realization of the social programs for the reconstruction of the village.

As is well known, the trend in capital investments for agriculture has changed in recent years. Fixed assets are now being allocated toward housing, cultural, and everyday construction, toward strengthening the feed production and feed preparation base, and toward improving the fertility of the soil.

During the 10th Five-Year Plan 23 billion rubles were invested in developing the material and technical base of kolkhozes and sovkhozes in the Nechernozem zone of the RSFSR including 13.7 billion rubles for construction and installation work.

Contract organizations made a weighty contribution in utilizing the assets. Their share came to 65 percent of the volume of construction and installation work that was completed. The RSFSR Ministry of Agricultural Construction completed 1.6 billion rubles worth of work for kolkhozes and sovkhozes during the years of the 10th Five-Year Plan.

At the same time contract organizations in the RSFSR union republic Ministry of Industrial Construction, Ministry of Construction of Heavy Industry Enterprises, the Ministry of Agricultural Construction, the Main Moscow Oblast Construction Administration, and others failed to provide 2 billion rubles worth of construction and installation work for kolkhozes and sovkhozes.

To implement the resolutions of the 26th CPSU Congress capital investments allocated toward developing the material and technical base of kolkhozes and sovkhozes in the Russian Nechernozem have been increased substantially during the current five-year plan. Over the past three years 15 billion rubles,

including 9 billion rubles for construction and installation work, have been allocated for these purposes.

The formation of agro-industrial associations in rayons, oblasts, krays, and autonomous republics in the republics of the Russian Federation significantly increases the role of the Ministry of Agricultural Construction in organizing capital construction in the village. In essence, this ministry must take the lead in implementing the plans for construction and installation work in kolkhozes and sovkhozes. What, in fact, do we have in mind? During the 10th Five-Year Plan the relative proportion of the volume of construction and installation work that was completed by contract organizations in the Ministry of Agricultural Construction for the Ministry of Agriculture amounted to only 11 percent in all.

If one analyzes the volume of work completed by organizations in the RSFSR Ministry of Agricultural Construction it is not a comforting picture that emerges. Throughout the entire course of the 10th Five-Year Plan the republic's Ministry of Agricultural Construction and Gosplan have promised that if we reduce the volume of work for next year then this plan will be met and contractors will be able to stand on their feet and, starting with the following year, will begin to complete the program.

This is a grave error. It is well known to everyone that the plan for construction and installation work for contract organizations, as well as by the management method, is, as a rule, not balanced in terms of technical and material resources. A smaller plan will be given a smaller number of workers, and all labor, financial, material, and other indicators. This is just the way it all happened. The smaller the plan that was drawn up the less frequently that it proved to be met. The status of affairs is not improving during the 11th Five-Year Plan either. This is what the statistics say. The republic's Ministry of Agricultural Construction completed 311 million rubles worth of work in the Nechernozem zone in 1976, 332 million rubles in 1980, 320 million rubles in 1983, and has taken on a volume of work of 343 million rubles in 1984.

A big deficiency in its work, and, yes, in other contract organizations as well, is the fact that construction in the village is, unfortunately, still being done around oblast centers. For a long time a line was persistently taken of forming a production base, as a rule, in oblast and rayon centers. This led to a situation where, for example, five of the 16 PMKs [mobile mechanized column] in Vologod Oblast were located in the oblast center; none of the 26 construction organizations in the Ministry of Agricultural Construction are in its 10 rayons. These organizations are doing construction work in 22 of the 118 sovkhozes in Arkhangel Oblast, 28 of 144 in Novgorod Oblast, 32 of 120 in Ivanov Oblast, 32 of 123 in Kostrom Oblast, 82 of 210 in Sverdlovsk Oblast, and 46 of 162 in Kaluzh Oblast.

With the availability of a huge base for the construction industry and saturated with mechanisms, transport is now acutely feeling the lack of working hands. And this deficiency is primarily not at the plants during production of reinforced concrete components but at the construction sites

where in recent years we have begun to continually convey the work force from oblast and rayon centers wasting huge resources, fuel, transportation and time on this.

Based on data by the TsSU [Central Statistical Administration] the duration of the work day in agricultural construction organizations is linked to transporting workers great distances. At present, it amounts to a little bit more than 5 hours when taking into consideration transport time. Shifting the center of the construction work load to remote rayons only exacerbates the problem of efficiently using work time even more.

We are not calling for the formation of construction organizations in every farming operation. But today the task stands before us of shifting the center of the work load to remote sovkhozes and to farming operations that are lagging behind economically. And this task is equally important both for the Ministry of Agriculture and the Ministry of Agricultural Construction as the general contractor.

For these goals it is necessary to form construction sections jointly with the Ministry of Agriculture directly at kolkhozes and sovkhozes, to relocate people there on the land, and to give them all the rights of kolkhoz and sovkhoz workers (agricultural farm plots, hay producing fields, and the services of children's preschool institutions) and other privileges that are intrinsic for the agricultural inhabitant. Incidentally, the All-Union Soviet of Kolkhozes approved such a resolution relative to interkolkhoz construction organizations.

In our view the time has come when contract organizations must reorient their work based on the principle of agricultural construction and housing construction combines that are at a uniform construction equilibrium so that the existing industrial base is used to the maximum to manufacture completely prefabricated buildings and structures for all purposes and so that only assembly work is carried out at the construction sites.

We have repeatedly raised the question of using the available work forces in sovkhozes and kolkhozes to complete construction and installation work. We have proposed organizing the so-called joint method of building structures at sovkhozes and kolkhozes. We have issued appropriate documents together with the republic's Ministry of Agricultural Construction, Gosplan, Gosstroy, Ministry of Finance, and Gosbank. And what is most paradoxical in our view, namely in the Nechernozem, is the fact that the joint method is not being extensively used through the fault of the republic's Ministry of Agricultural Construction.

The republic's Ministry of Agricultural Construction is persistently working towards having contractors expand the zone of their activity and, most importantly, increase the volume of their work. But, unfortunately, we cannot be oriented towards the Ministry of Construction, the Ministry of Industrial Construction, or the Ministry of Construction of Heavy Industry Enterprises. As practice has shown, the smallest change in conditions, an increase in the volume of the principal types of construction done by these ministries leads

a sharp reduction in the volume of contract work for agricultural construction and the participants in the agroindustrial complex stay with the same program that was set for agriculture on their own.

The ministry is also anxious about the following problems. During formation of the plan for 1984, as is specified by the resolution, agroindustrial associations made their proposals for the plan of contract work for the organizations in the republic's Ministry of Agricultural Construction and the Russian Kolkhoz Construction Association according to priority. The Russian Kolkhoz Construction Association and the Ministry of Agriculture have accepted the volumes of work since they were coordinated with the agroindustrial associations. However, the Ministry of Agricultural Construction--a participant in the agroindustrial complex--unjustifiably reduced the volume of work in 16 of 29 oblasts and autonomous republics in the Nechernozem zone.

It is incomprehensible why, during the period of forming rayon and regional agroindustrial associations the ground should be taken out from under their feet. For the failure to accept the volumes of work coordinated with the agroindustrial associations puts them in an exceptionally difficult situation.

At the same time it should be noted that the agroindustrial associations approached the formation of the plan for contract work objectively. Thus, for example, the volumes of work intended to be done by the joint method were included in the volumes of work to be completed by the Ministry of Agricultural Construction in 1984 in Pskov, Kalinin, and Vologod Oblasts. That is, oblast organizations are attempting to help to find a way out of the situation and there is no justification for restraining them.

The slow growth in the volume of contract work leads to the fact that oblasts, krays, and autonomous republics in the Russian Federation are forming their own construction subdivisions; for example, 8 trusts and more than 130 PMKs are operating today in the republic Ministry of Agriculture's system, huge assets are being allocated toward forming their own production base, and the construction of reinforced concrete components plants, and construction and housing construction combines has begun.

Observing this phenomenon from the state's position, we want the Ministry of Agricultural Construction, receiving substantial capital investments to develop a production base for the agricultural sector, to increase the rates of completing work in a more positive manner.

It seems to us that the republic Ministry of Agricultural Construction, together with the Ministry of Agriculture and the Russian Kolkhoz Construction Association, should finally sit at a "round table" and come to an agreement about the use and development of existing organizations and the production base that has already been formed in all oblasts, krays, and autonomous republics in the Russian Federation by originating with the interests of the agroindustrial associations.

AGRICULTURAL CONSTRUCTION

KASSR GOSSTROY OFFICIAL ON DEVELOPMENT OF RURAL SETTLEMENTS

Alma-Ata SEL'SKOYE KHOZYAYSTVO KAZAKHSTANA in Russian No 3, Mar 84 pp 37-38

[Interview with Anatoliy Vasil'yevich Borisov, chief of KaSSR Gosstroy administration of rural construction and planning and building of rural populated points, by correspondent S. Krymova: "A Reference Point"]

[Text] The development of virgin lands contributed to the establishment of a major agro-industrial complex in our republic and changed the population's demographic make-up and rural residents' tenor of life. It also could not fail to affect the scope and tempo of rural construction. Anatoliy Vasil'yevich Borisov, chief of the administration of rural construction and the planning and building of rural populated points of KaSSR Gosstroy, answers questions from our correspondent S. Krymova about changes which have occurred in it, about today's appearance of villages, and about prospects of rural construction.

[Question] What changes have occurred in recent decades in the planning of rural populated points?

[Answer] The virgin lands are, in the full meaning of the words, a reference point in the broad development of construction in the one-time sparsely populated region of Kazakhstan. It is even difficult to compare the present level of village planning with that in existence 30 years ago, for one can only speak conditionally about the planning of populated points in the first years of development of the virgin lands.

In those years there were not yet any special planning institutes. General plans were fulfilled by unspecialized planning organizations. Individual institutes of Russia, Latvia, Lithuania, Belorussia and the Ukraine were included in this work on the basis of sponsorship assistance. Planners would make decisions often even without a visit to the site, tying them in to a so-called "conditional plane."

In 1955 subunits were established in Aktyubinsk, Dzhambyl, Karaganda, Tselinograd and other oblast centers on the basis of a branch of the Giprosovkhozvodstroy [USSR Ministry of Sovkhozes All-Union State Institute for Planning Water

Economy Construction], and later independent institutes were formed on the basis of these subunits. In the latter half of the 1960's this allowed complete rejection of outside help. Now there are planning organizations in all the republic's oblast centers and in addition Kazgiprograd [exact expansion unknown] is working on prospects for the region's development.

[Question] During these years did the approach to architectural-planning organization of settlements change in principle?

[Answer] The arrangement of basic village components making up an ensemble--houses of culture, trade enterprises, schools, offices, domestic services combines--was done earlier at the level of perception of custom construction. For this reason hypertrophied areas of public centers and main streets with a width of 150 or more meters arose. It must be noted that almost half of the planning and building projects was turned out at that very period when the republic had an extremely weak planning base, and this had a negative effect on the architectural appearance of villages. Although completely built up according to the general plans, some of them did not obtain the proper effect in city designing and building. A comprehensive program for drawing up new projects and correcting obsolete ones was planned to remedy such deficiencies.

The number of settlements has been cut in half since 1959, and now there are some 16,000 of them. Special attention is given to planning populated points with a well-developed network of cultural and everyday services.

An analysis of the construction of virgin-land villages shows the establishment of progressive techniques for planning and building. General plans now are being drawn up on the principle of establishing comprehensive building. More diversity appeared in the configuration of public centers, residential areas and production complexes. Fuller consideration is given to the nature of farmstead building, the population's demographic composition, and national features and traditions. Natural and climatic conditions and the need for taking special steps for environmental protection are taken into account in drawing up plans.

[Question] How is the comprehensive program for reorganizing rural populated points being implemented specifically?

[Answer] There are 5,600 intensively developing populated points defined in the republic with consideration of the location of the basic highly mechanized agricultural production, and 80 percent of them have been provided with planning estimates. At the initiative of the KaSSR Gosstroy a list of settlements has been defined in a number of oblasts for the purpose of broad dissemination of foremost experience, and measures have been drawn up for those settlements which when implemented should provide the necessary effect in city designing and building in just the next few years.

[Question] What changes have occurred in development of the material and technical base of rural construction?

[Answer] The industrialization of construction is of primary importance for Kazakhstan with its considerable territorial dispersal, the distance of rural construction sites from construction industry bases, and poorly developed transportation network.

Back in 1953 the republic began development of production of precast concrete and a transition to the industrial method of construction. While previously adobe, raw brick and clay were the basic construction materials in the village, now precast structures, large components and plant-manufactured assemblies are being used widely. The manufacture of light industrial structures using asbestos cement sheets, aluminum, profiled steel flooring and water-resistant plywood has been developed.

The construction materials industry is developing at rapid tempos. In only the first decade of developing the virgin lands cement production rose 130 times.

The republic now has six cement plants operating with a capacity of eight million tons per year, around 450 enterprises for producing wall materials, more than 200 plants and shops for manufacturing precast concrete, and 28 enterprises for producing porous fillers and combines for manufacturing ceramic and asbestos cement construction articles and construction plastics.

[Question] What indicators and facts can tell the journal readers most vividly about achievements in rural construction?

[Answer] The successes achieved are shown persuasively by results of the All-Union Competitive Review for the best building and civil improvements: 158 villages of Kazakhstan were awarded USSR VDNKh [Exhibition of Achievements of the National Economy] diplomas and certificates, with more than half of them being virgin land villages.

Among the best were the central farmsteads of the Sovkhoz imeni N. G. Kozlov of Kustanay Oblast and the Kaplanbek Sovkhoz of Chimkent Oblast, which received USSR Council of Ministers bonuses. The settlements of Pervomayskiy of Kustanay Oblast, Zelenyy Bor of Kokchetav Oblast, Urpek of Turgay Oblast, Zhdanovo of North Kazakhstan Oblast and Malinovka of Tselinograd Oblast also are models of full-scale building and of successfully implemented solutions in city designing and building.

The republic presently has reached a level where figuratively speaking the rural toiler receives some 200 three-room single-apartment residences from the construction conveyor each day, three schools of general education through the eighth grade and two children's preschool establishments for 90 places in a single work week, and two clubs each holding 400 viewers during a month. The supply of living space in the rural area has reached almost 12 m² per person.

[Question] What unresolved problems are still having a negative effect on the architectural appearance of the village?

[Answer] First of all, the disproportion in planning capital investments. Life requires a comprehensive approach to the solution of a particular populated point, but meanwhile only some two percent of capital investments are allocated for engineer equipment, and that is why it is at a low level and lags considerably behind the rates of housing construction. The supply of social and cultural facilities to villages also lags noticeably behind normative requirements. There must be a change in the structure of capital investments so that it meets modern demands.

One of the problems requiring a serious analysis is a consideration of the dynamic nature of needs for cultural and personal services facilities. Gosstroy's planning institutes are drawing up comprehensive building plans for a period of 15-20 years ahead, and calculations are made accordingly under the construction norms and rules established by GOST [state standards]. And it often happens where an excellent large school or palace of culture has been built in a sovkhos according to the general plan and it stands empty. It is not because, for example, cultural enlightenment work is carried on poorly in the palace, but because the plan was drawn up for the future with a consideration of the population's growth. It is only in 15-20 years that the settlement will reach estimated size, but the palace of culture is standing even now but not being operated to full capacity and it is gradually becoming neglected. It is also well if in 15-20 years the settlement still reaches the size for which the school, hospital, club and other establishments have been calculated. It does happen that before the estimated date the farm's specialization changes for objective reasons and the settlement generally may not reach the initial estimated size based on the number of residents.

It is difficult for now to find the only proper solution to this problem. Perhaps the SNIP's [Construction Standards and Specifications] have to be more flexible and perhaps it is worthwhile thinking about a graduated accomplishment of the general plan where public buildings would carry more than one functional load. There is something here for the scientific research institutes to ponder.

There are other problems as well which require their solution: the architect positions are not always held by people who really are specialists in their work, and instances of deviation from the general plan are rather frequent; construction quality lags behind modern requirements; and the proportion of individual construction of residences is practically not growing. But not one of the problems can be considered insoluble. Life goes on, the virgin lands provided a sure impetus, and in the future our villages will become even more comfortable and beautiful and will meet all the needs of rural toilers.

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HOUSING CONSTRUCTION

RSFSR DEPUTY MINISTER ON INDIVIDUAL, COOPERATIVE HOUSING

Moscow SEL'SKOYE STROITEL'STVO in Russian No 3, Mar 84 pp 1-3

[Article by O. Poteryakhin, RSFSR deputy minister of agriculture: "To Intensify Individual and Cooperative Residential Construction"]

[Text] The decisions of the June (1983) Plenum of the CPSU Central Committee and the conferences at the CPSU Central Committee on 18 April 1983 on the practical questions of development of agriculture and realization of the Food Program have been realized as the urgent program of action for the Soviet people. A central place in these documents, as well as in the decisions of the May and November (1982) Plenums of the CPSU Central Committee belongs to questions of further increasing the people's standard of living and socialist development of the farm.

It was especially stressed that the successful solution of these problems depends primarily on providing the farms with a permanent work force, for which it is necessary to build more residential housing, schools, children's preschool institutions, roads and other cultural-domestic facilities. In recent years, huge capital investments have been allocated for the social development of the farm. In the 10th Five-Year Period, residential housing with overall area of 36.2 million square meters, schools for 670,000 students, children's preschool institutions for 332,000 pupils, and clubs accommodating 555,000 persons have been built and placed into operation in the sovkhozes and kolkhozes using state funds.

For the 11th Five-Year Period, the farms of the RSFSR Ministry of Agriculture have been allocated 18.1 billion rubles for the construction of facilities of social function, which is 1.6 times greater than in the 9th Five-Year Period. Provision has been made for building 57 million square meters of residential housing area, 869,000 school and pre-school places, clubs for 708,000 people, 34,000 kilometers of intra-farm roads, and a number of other facilities of communal, trade and domestic service.

In the two years of the 11th Five-Year Period (1981-1982), residential housing with overall area of 19.4 million square meters, school and pre-school institutions for 340,000 pupils and clubs for 16,000 people have already been introduced into operation as part of the plan. In the Russian Federation, a firm course has been taken toward the predominant construction of residential houses of the farmstead type in rural settlements, with adjoining plots for conducting personal subsidiary farming.

The allocated capital investments and the work performed in the RSFSR on the social development of the farm make it possible to significantly increase the level of provision of rural residents with improved residential houses and to improve their level of cultural-domestic service. However, in order to resolve the questions of full satisfaction of the needs of workers at sovkhozes, kol-khozes and other subdivisions of the agro-industrial complex for improved housing with the necessary complement of outside buildings and with consideration of integrated construction on the farm within the next few years, it is necessary to have the active help of the population in significantly expanding the volumes of individual and cooperative housing construction.

Such types of construction have significant advantages. Each builder may select a house according to his own tastes and needs, based on the make-up of his family and the traditions which have been set, build the necessary number of subsidiary buildings as applicable to the conditions for conducting subsidiary farming and to the presence of his own transport, and determine by his own choice the level of inside and outside improvements and finishing. All this cannot be done in full measure when receiving a state granted apartment. At the same time, the state affords the builder huge material aid in construction and in engineering provision.

The resolution of the CPSU Central Committee and the USSR Council of Ministers entitled "On the Further Development of the Construction of Individual Residential Houses and Securing the Work Force on the Farm" and the resolutions of the USSR Council of Ministers, "On Individual Residential Housing Construction" and "On Residential Housing Construction Cooperation" all provide for great incentives for the kolkhozes, sovkhozes and other state agricultural enterprises implementing the building of individual and cooperative residential houses for their workers, as well as for workers at sovkhozes and other agricultural enterprises who express a desire to build their own residential houses.

These incentives consist of the following. The initial contributions of the workers' own funds at these farms are made in the amount of 20 percent of the estimated construction cost of the residential house with adjoining yard structures. For persons who have served in active military service and young specialists, and for workers of mass professions who have come to work permanently at farms which experience an acute work force shortage, the amount of this initial contribution is reduced to 10 percent. This contribution by the farm workers is made on a two-year time payment plan.

Kolkhozes, sovkhozes and other agricultural enterprises and organizations are given bank credit for the construction of individual residential houses with adjoining yard structures. These loans are repayable within a period of 25 years after completion of the construction. Here, 50 percent is paid by sovkhozes and other agricultural enterprises and consumer cooperative organizations at the expense of economic stimulation funds, and at farms which are operating at a loss or low profitability and with the union republic Council of Ministers, they are paid at the expense of the state budget. The remaining 50 percent of this credit are paid off by the farm workers in monthly payments. It is recommended that the kolkhozes build individual residential houses with adjoining yard structures using the credit issued for this purpose in an order established for the sovkhozes and other agricultural enterprises.

The cost of construction is computed in order according to the prices and norms set for determining the estimated cost of state residential housing construction.

The installation of extra-settlement and intra-settlement engineering communications and structures is done at the expense of state capital investments.

The sovkhozes and other state agricultural enterprises and consumer cooperative organizations are allowed, and the kolkhozes are urged to sell their workers residential houses of the farmstead type with adjoining yard structures which have been built at the expense of state capital investments, kolkhoz funds and bank credits, or the consumer cooperative organization's own funds. These workers are to pay 50 percent of the cost of the residential house with adjoining yard structures in equal monthly payments for a period of 25 years from the day of sale. If the workers of kolkhozes, sovkhozes or other state enterprises and organizations wish to build individual residential houses with adjoining yard structures by their own efforts, each of them will be given bank credit in the amount of up to 3,000 rubles to be repaid within 10 years, starting with the fifth year after completion of house construction. Moreover, for capital repair of individual residential houses with adjoining yard structures and for hooking them up to water and sewer lines, the builder is given credit in the amount of 500 rubles to be repaid within five years after the work is completed. For expenditures on hooking these houses to gas service the loan is 200 rubles per house (apartment) to be repaid within three years after completion of the work.

The resolution has obligated the USSR Gosplan [State Planning Committee] and the USSR Ministry of Trade, in agreement with the USSR Gossnab [State Committee for Material and Technical Supply] and the Tsentsosoyuz [Central Union of Consumer's Cooperatives USSR] to provide for the allocation of a market fund of sets of standard wood houses and parts for houses made of local materials, as well as sanitary-technical equipment, joinery and hardware products and other construction and finishing materials for supplying the construction of individual residential houses with adjoining yard structures. It has obligated the ispolkoms [executive committees] of the local Soviets of People's Deputies, the enterprises, institutions and organizations to give the individual builders aid in obtaining and transporting building materials and parts with payment for transport services by the builders according to the existing rates.

It has also been proposed that the ministries, state committees, departments and ispolkoms of the local Soviets of People's Deputies, enterprises, institutions and organizations conduct the sale of construction and finishing materials, instruments, joinery and hardware products, individual parts and sets of standard wooden houses to their workers in the established order for the construction of individual residential houses. These are to be sold at retail prices, if these have been established, and at wholesale prices if no retail prices have been set.

Provision has been made to sell local building materials to individual builders who are building residential houses with adjoining yard structures directly at the lespromkhoz [timber management] or logging settlements according to the

effective wholesale prices and to allocate a logging fund for them. 1. compiling estimates for the construction of individual residential houses, the cost of materials is determined according to the retail prices, and in their absence -- according to the wholesale prices.

The above-mentioned incentives and advantages, as well as a number of other incentives for individual builders provided by the indicated resolutions, make it possible for each rural resident to obtain his own residential house with farmstead in a short time and with low material expenditures.

Computations show that in taking advantage of the above-mentioned incentives, the monthly payment on the loan for the owners of the individual or cooperative residential house does not exceed the monthly rent paid in a state-owned apartment. Here we must consider that the state capital investments and kolkhoz funds which are freed may be directed toward expanding the construction of children's institutions, clubs, engineering structures, road construction, and a number of other facilities of trade and domestic service to the rural population.

The experience of a number of oblasts, krays and autonomous republics in the Russian Federation, the Belorussian and Lithuanian SSR and certain other union republics, allows us to draw a conclusion as to the high effectiveness of individual and cooperative residential construction on the farm. The implementation of this work has made it possible to significantly improve residential housing conditions of farm workers, to reduce migration of the population, and to secure a qualified work force at the farms. This has facilitated an increase in labor productivity and an expansion of the production of agricultural products.

At the present time, 29 villages in Moscow Oblast are included in collectives of individual builders and residential-construction cooperatives. Farm workers have paid over two million rubles to the bank on account of their initial contributions. A plan for the construction of 5,900 individual and cooperative residential houses in 1983-1990 has been ratified by decision of the party's Moscow Oblast Committee and the Mosoblispolkom [Moscow Oblast Executive Committee]. Tasks have been set for the trade and supply organization for the sale of construction materials and products in complement to individual builders. Construction and patronage organizations and enterprises have been called upon to perform construction work, and construction work brigades have been created in the sovkhozes and kolkhozes.

The party and soviet organizations are performing on-going mass political and practical work on expanding the construction of individual and cooperative residential houses and involving the funds of the population for these purposes.

Positive results have already been achieved in this matter. Settlements of cooperative and individual residential houses have been built in the sovkhozes of "Nara" in the Naro-Fominskiy rayon, "Borets" in the Dmitrovskiy rayon, "Povadinskiy" and "Zarya kommunizma" in the Domodedovskiy rayon, in the "Put' Il'yicha" kolkhoz of Kashinskiy rayon, and a number of other farms in the oblast. These have received the approval of farm workers and a wide circle

within the community and have motivated many urban residents to move to rural areas for permanent work.

The popularity of rural cooperatives and collectives of individual builders is growing every year in the oblast. More and more farm workers are becoming convinced of the advantages of this construction.

The experience of organization of individual residential housing construction in Altay Kray deserves attention. It is being implemented through the efforts of the builders themselves by the group method, in which a group of four to six families takes turns in fulfilling all the social work first for one family, and then for the next ones. In this case the materials and products, mechanisms and transport are allocated by the farms and construction of external engineering networks (electrical service, water supply, heating, gas supply and sewage) is performed through the efforts and means of the farms. The application of such methods of work organization makes it possible to build an individual residential house with overall area of 70-100 square meters with adjoining yard structures for one farmstead within a period of 2-3 months. Here, the builder pays for 40-50 percent of the construction cost, while the remainder is absorbed by the farm without remuneration.

Extensive work is being performed in the kray's farms on the organization of the production of local building materials. This makes it possible to supply them to individual builders in a timely manner. Individual residential construction has been most successfully organized in the kolkhozes imeni Kirov, imeni Lenin, "Pobeda", imeni 22nd Party Congress in Slavgorodskiy rayon of this kray. Here, 20 individual residential houses with all communal conveniences and adjoining yard structures are introduced into operation each year.

At the same time, cultural-domestic buildings are being built and work is being done for improving the farms. All this is yielding positive results. Up to 70 percent of the school graduates remain to work at the farms. In recent years, the volume of individual residential housing construction has risen significantly: in Omsk Oblast -- by 37 percent, in Astrakhan Oblast -- by 36 percent, in Bryansk Oblast -- by 21 percent, in the Bashkir ASSR -- by 16 percent, and in Kuybyshev Oblast -- by 15 percent. On the whole throughout the farms of the RSFSR Ministry of Agriculture, a total area of 4.8 million square meters of individual and cooperative residential housing was introduced into operation in 1981-1982.

In the current five-year period, provision has been made for building and introducing into operation individual residential houses with overall area of 15.6 million square meters throughout the RSFSR kolkhozes and sovkhozes. This includes 3.2 million square meters of cooperative housing. According to the long-range plan for the 12th Five-Year Period, the volume of construction of such houses will be increased to 18.3 million square meters, including up to 3.7 million square meters of cooperative housing.

In order to ensure the fulfillment of the set tasks, it is necessary to increase the responsibility of soviet and agricultural organs and sovkhoz

and kolkhoz managers for the organization and implementation of individual residential construction. Extensive explanatory work must be performed and practical aid given to individual builders on the basis of the accumulated experience in organization of this work. It is inadmissible that certain oblasts which experience a great shortage of residential housing, are not utilizing the great capacities for organization of individual residential construction. At the same time, it is necessary to activate the work of trade organizations for the general sale of construction and finishing materials, sanitary-technical products, parts, and sets of standard houses to individual builders.

The USSR and RSFSR Gosplans should also increase their attention to individual and cooperative residential housing construction, to ensure the allocation of funds for construction and finishing materials, and to provide the necessary limits of contracting work by orders from the agricultural organs.

It is necessary to simplify the order of formulating project-estimate documentation for individual residential construction. The order presently in effect does not facilitate its successful implementation in this matter.

The patron organizations and enterprises may render serious aid in the organization of such construction.

There is no doubt that the presented tasks for individual and cooperative residential construction on the farm will be successfully fulfilled through joint efforts.

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12322

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HOUSING CONSTRUCTION

DEFECTS IN HOUSING CONSTRUCTION DISCUSSED

Moscow STROITEL'NAYA GAZETA in Russian 4 Apr 84 p 3

[Article by special correspondent A. Alekseyev, Tyumen-Riga-Moscow: "Quality Mirrors Work: An Equation with Many Unknowns"]

[Text] At one time the newspaper editors together with city people's control committees, entities of Gosarkhstroykontrol' [State Architectural-Construction Supervision] as well as ZhEK [Housing and Housing Maintenance Office] workers and residents held spot inspections to check the quality of housing in Vologda, Gorkiy, Ashkhabad, Kapchagay and Derbent. The results showed that in standard houses there usually was standard incomplete work, regardless of the geographic location or size of the cities.

The most widespread "sore" points were identified as a result: unreliable external panel joints, poor quality of woodworking articles, flaws in reinforced concrete structures, careless finishing of outer walls and certain others. There must be a careful examination of the reasons for the appearance of each of the listed deficiencies.

Today we are publishing the first article in this series. It is devoted to an especially insidious and unfortunately very widespread phenomenon: leakage of joints in a panel house.

...Concrete gave birth to the panel, the panel gave birth to the joint and the joint gave birth to the problem...

Its essence is simple: moisture and cold penetrate the housing through a badly made joint between outer wall elements and valuable heat escapes outside. It would appear that everything is basically simple--make the joint impermeable and airtight and the problem will be stillborn. But it turned out that this is an equation which is not so simple to solve.

Statistics know everything, including that the repair of housing joints (according to data of the LNII [Leningrad Scientific Research Institute] of

the Municipal Services Academy imeni K. D. Pamfilov and the NII [Scientific Research Institute] of Economics of Construction of USSR Gosstroy) is performed annually on an area of some 160 million square meters and costs 60 million rubles. The problem resembles a snowball rolling down the mountain and threatening to become an avalanche.

In the firstborn panel housing there was no particular trouble with the joints. They took oakum, a pointing trowel and hammer and caulked the chinks as had been done in Rus since olden days. And at that time it was believed that we had more than enough at this oakum. Timid attempts to introduce synthetic materials received an angry rebuff similar to that which Edison was given by His Majesty's Minister of Post and Telegraph. To the proposal to install telephones in the British capital Edison heard: "In London, thank God, messenger boys are still sufficient."

But there was a catastrophic lack of messenger boys, as there was of oakum. There was one reason: the irrepressible growth of cities and the swift drive of industrial methods for erecting them.

It was only then that a subunit handling butt joints was set up in the TsNIIEP [Central Scientific Research and Planning Institute of Standard and Experimental Planning] of Housing. The specialists began to check different configurations of joints and they tested varied packing and sealing materials, not disdaining even foreign experience.

Joints on special stands were lashed with rain and wind in a test to see how they would behave under real conditions. The quest justified itself; scientists were able to propose several designs of approved butt joints. Along with the traditional "closed" joint, so-called "open" and "drained" joints were envisaged, and these are what entered the all-union catalogue.

It seemed the problem had been overcome. Take a tested design and incorporate it in the plan. But a test bench is one thing and mass production is something quite different. Joints began to leak here and there. Why?

Perhaps the design is too complicated and the planners are up in the clouds without taking earthly limits into account? Not at all. Technically the problem has been solved quite competently and rather simply, but a joint is crafty and reacts extremely painfully to the slightest inattention to itself. It is in constant movement like a living organism. Wind loads fall on the panel, in winter it is compressed by freezing temperature and in summer it is pushed apart by the heat. The wall is rinsed by rain and scorched by sun, and settlement tries to warp it at its whim. All this inevitably affects every joint. Will it hold? It will if it has been made with quality. And if not?

Let's trace the thorny path of a panel just from the example of new Tyumen construction sites.

According to the rules, back in the shops of the Glavtyumenpromstroy [Main Administration of Industrial Construction of Tyumen] DSK [Housing Construction Combine] large-panel housing construction plant, the side and upper margins of

the panels must be coated with primer, a special undercoat, otherwise the mastic at the joint openings simply will not adhere to the surface. The people here had only heard of such primer, but had not seen it. Unfortunately, assert the specialists, it is the very same situation at other plants: no primers.

Now let's follow the panel to the warehouse. It is a very sad spectacle. The articles are placed here helter-skelter. The breakage of collars and teeth and the chipping of side edges have become so commonplace that no one pays attention to this. One only wonders how an 80-mm concrete slab could have been shattered.

Both the drivers and the riggers have the very same negligent attitude toward the articles. Panel carriers are not equipped for transporting outer wall elements, especially large-sized ones, which means new wounds are inevitable on the bumps.

Imagine that color television sets are being carried in a heap on the back of a truck and are unloaded like wood... Impossible? But you can do it to your heart's content with panels of approximately the very same value!

Then finally we have made our way to the assembly area. The anchor loop is filled with concrete. There's no need to think; break it out with a bar... The collar is broken? It's not glass, we'll mortar it! And so they do. Only that "mortar" already threatens trouble--leaks.

But tell me: have you heard even once where someone had their pay docked for damaging a costly panel? No. That's a pity; they should have been.

Well, let's say we exaggerated somewhat and a portion of the articles were delivered rather sound. Now the panel has been tenderly put in place, the particles of dust blown away and the panel smoothed by hand... According to all rules, the joint now must be sealed. This means a windproof strip glued in the well on the inside and a liner laid in the opening on the outside and neatly filled with mastic.

Here is where the amateur work begins. Anything at hand is used in place of a strip: ruberoid, fiberglas fabric, pergamyn... Whoever has what. On the outside a cover gasket is driven into the joint. What if the opening is too large? Two gaskets are twisted together, and they are even filled with boards! Mastic is poured on top, not for sealing, but rather for camouflage.

Well now, is the irresponsibility of the builders at fault for everything in these violations of technology? Of course not. The problem is that industry does not meet even half the needs of the construction sites. Last year, for example, more than 40,000 tons of various sealing mastic, more than 6,000 tons of windproof tape in a set with adhesives, some 800 tons of polyethylene foam sealing gaskets and 9,000 tons of rubber sealing gaskets were required for sealing joints. Our industry provided only half this amount.

And where can the rest be obtained? Here is where the searches begin. As a result many sealing materials are produced for builders not so much by specialized plants as by enterprises of local industry, often from that raw material which cannot be said to have satisfactory quality. But even the products from centralized deliveries leave much to be desired, as the saying goes.

There can be some explanation of the fact that articles for builders go begging with the specialists of the industrial rubber sector. But why are they so unwillingly adopted by the native VNIISTroyopolimer [exact expansion unknown]? The fact is that there is no mastic to this date equal in properties, for example, to Rabersilu-1K, exported from Finland, not to mention much more that is extremely necessary.

Let's ask one other question: What do the builders use for sealing joints? Pneumatic injection is the first thing you will be told. But try to handle this eight kilogram "plaything" for an entire shift. In addition, a construction site has to have a special station for filling cases with mastic, which moreover has to be heated to 120 degrees.

It would appear that the Shmel' and Styk-20 electric sealers, weighing only a little more than three kilograms, promised bright prospects, but even a small pebble in the mastic knocks out the worm entirely. And again they are supplied in pitifully small numbers: for example, last year five were assigned for all of Glavtyumenpromstroy!

Excuse me, but in the final account just what is happening? We are not speaking of the problem of flying to another galaxy, only about a basic joint. Is this microproblem really insoluble?

Of course not. The Riga builders found a solution. They used an "open" joint developed in the TsNIIEP of Housing, where a plastic screen blocks the path for moisture, in houses of the "119" series.

It is true that the "open" joint is not a panacea. It will freeze under Siberian conditions, which means a closed joint is necessary but, most important, assembled according to all rules. Planners and performers will find all these rules in a letter of instructions on the design of waterproofing and airproofing for panel joints of external walls in large-panel buildings, which was prepared and sent to all the country's DSK's by specialists of the TsNIIEP of Housing. It not only states and shows how and how not to prepare and seal joints, but it also lists the recommended material and names the manufacturing plants...

But action must follow words. It still has to be assured that the planners are oriented toward approved designs, that strict observance of manufacturing methods is under supervision and that the panel manufacturers provide only quality standardized products. And finally, the USSR Minneftekhimprom [Ministry of the Petroleum Refining and Petrochemical industry] and Minkhimprom [Ministry of the Chemical industry] in turn have to provide the full amount of a product so necessary to builders.

But this list of conditions for solving the problem will have little significance without observance of one other thing: good working conditions at the construction site.

Cybernetics specialists assert that man is the most reliable link in the "man-machine" system. A very great deal depends on him, but he is subjected to all kinds of weaknesses: he is in a bad mood or he doesn't feel up to par. Here high professionalism probably can be the most reliable stabilizer for a working mood, and specialization helps achieve it.

But who seals joints today? Anyone you like! If a brigade leader happens to spot you: "Get into the cradle and fill up the joints." But such a responsible job should be assigned only to specially trained workers, and special diplomas should be introduced for them as already has been done for welders and riggers. That is just what the Riga personnel did and they achieved high quality.

There is no question that strict supervision is necessary over all operations (especially concealed work) with a mandatory entry in a log as to who sealed the joint when and where. Then if defects are discovered even after the house is turned over, it will at least be known specifically who should give an accounting for the defects and perhaps who is to be given a monetary punishment.

This then is the last and most important link in the chain of the joint equation with, as we see, many unknowns. In order to be able to boldly place the Symbol of Quality to the right of the equal sign it is necessary for every member in the left part of the equation to be strong and reliable.

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CSO: 1821/105

HOUSING CONSTRUCTION

FIGURES FOR RESIDENTIAL HOUSING CONSTRUCTION GIVEN

Moscow STROITEL'NAYA GAZETA in Russian 2 Mar 84 p 3

[Article prepared by the Department of Urban Development of "SG" and the Capital Construction Statistics Administration of the USSR Central Statistical Administration: "Many New Homes"; passages rendered in uppercase appear in boldface in source]

[Text] The town of Abovyan, which is in the Armenian SSR, is not yet on all maps of the Motherland. It is new and still not large. But glorious landmarks of socialist creation have also been vividly reflected in its biography. In the time that has passed since the previous elections to the USSR Supreme Soviet, 1900 families have received new homes in Abovyan. Next year, construction of a third microrayon will be completed; in it will live more than 12,000 people.

LIKE THE SEA FROM DROPS, SO THE APPEARANCE OF OUR MODERN CITIES AND VILLAGES IS TAKING SHAPE FROM THE MANY NEW BUILDINGS. HERE ARE TODAY'S LINES FROM REPORTS OF THE USSR CENTRAL STATISTICAL ADMINISTRATION: IN 1983, HOME BUILDERS FULFILLED THE PLAN OF RESIDENTIAL CONSTRUCTION. TO THE COUNTRY'S RESIDENTIAL FUND MORE THAN 110 MILLION SQUARE METERS OF SPACE HAS BEEN ADDED. THAT'S TWO MILLION NEW APARTMENTS.

In the years of Soviet power, residential housing, the area of which comprises a total of 3.8 billion square meters, has been built and put to use in our country. Despite the huge losses suffered during the Great Patriotic War, 1710 towns and settlements were destroyed, the country's urban residential fund has increased almost six times in the years of peace. In the last eight years (1976-1983) alone, 80.9 million Soviet citizens have improved their residential conditions. Of these, 58.6 million people have received residential space in new buildings.

Our Constitution is the first in the world to register the right of citizens to housing. This right has received further support in the USSR Principles of Residential Legislation, approved at the 5th session of the 10th convocation of the USSR Supreme Soviet. In this legislative act for the first time was juridically confirmed the right to receive, in established order, housing and the unlimited use of it in buildings of the state and public fund, and also of the residential construction cooperatives. The Principles also stated that the distribution of new residential space now would, as a rule, be in accordance

with the principle of a separate apartment for every family. And 80 percent of the country's urban inhabitants already live in such apartments.

It is well known that the chief principle for allocating apartments in our country is the individual's labor contribution. In organization for registration, citizens who actively prove their worth in labor and public work, cadre workers of the enterprises, production veterans, those excellent in socialist competition, and innovators enjoy the distribution of residential space as a primary right. Invalids of the Great Patriotic War and participants in it have additional privileges. Families that have three or more children, mother-heroines, families with twins, and certain other categories of citizens also receive apartments out of turn. The care of the party and the state for the individual toiler is thus graphically demonstrated.

DATA FROM BUDGET INVESTIGATIONS OF WORKERS AND EMPLOYEES INDICATE THAT PAYMENT FOR AN APARTMENT AND COMMUNAL SERVICES COMPRISES THREE PERCENT OF TOTAL FAMILY INCOME. COMPARE: IN CAPITALIST COUNTRIES, THE FIGURE IS MORE THAN 20 PERCENT. THE STATE PAYS TWO-THIRDS OF THE EXPENSES FOR THE MAINTENANCE OF THE COLLECTIVIZED HOUSING FUND IN OUR COUNTRY.

In scale of residential construction, the Soviet Union stands in one of the first places in the world. During the current five-year plan, in conformity with the program projected by the 26th CPSU Congress, we are to build 530 to 540 million square meters of residential housing space. It now takes less than a month to build enough housing for a city with a population of half a million.

IN 10 YEARS (1974-1983), THE RESIDENTIAL FUND OF THE CITIES HAS INCREASED APPROXIMATELY 1.4 TIMES. AT THE SAME TIME, THE ORGANIZATION OF PUBLIC SERVICES AND AMENITIES OF APARTMENTS AND THE PLANNING OF THEM IS CONSTANTLY BEING IMPROVED. A TOTAL OF 110 BILLION RUBLES IS ALLOCATED FOR RESIDENTIAL AND COMMUNAL CONSTRUCTION IN THE CURRENT FIVE-YEAR PLAN.

This is the situation today. But to estimate the country's construction effort at its true worth, we must turn to the sources. In a total of three years after the war, the housing fund of the cities had been rebuilt in its entirety, and by 1950 it exceeded the prewar level by 22 percent.

And the pace has increased with every year. In the period 1956-1965, an average of 96.5 million square meters of housing was put into service annually, i.e., more than twice as much as in the previous decade. True, they were primarily building simple, cheap projects then. But when evaluating this period in the development of residential construction, one cannot but consider how hard times were. We had to economize on everything.

However, the first generation of completely prefabricated buildings, introduced in the years 1958-1965, played a tremendous social role. It strengthened the principle of family settlement of apartments in practice.

Today the question of renewing part of the old residential fund arises with particular acuteness. Not without reason were more than 2.7 billion rubles expended on major repairs in 1983.

During the reconstruction, it is proposed to improve the planned structure of apartments and to increase the area of the kitchens, entrance halls, sanitary assemblies, and bathrooms. It is also possible to expand the choice of apartments in conformity with demographic prognoses.

IN THE LAST EIGHT YEARS (1976-1983), ALMOST 16.3 MILLION APARTMENTS HAVE BEEN BUILT. AT THE SAME TIME, CHANGES HAVE OCCURRED IN THE DISTRIBUTION OF PARTICIPATION BY INDIVIDUAL PUBLIC SECTORS IN RESOLUTION OF THE RESIDENTIAL PROBLEM. THE OVERWHELMING PORTION OF HOMES (MORE THAN 70 PERCENT) ARE BEING BUILT WITH STATE FUNDS.

Individual residential construction is being widely conducted in rural areas with the population's funds and with the aid of state credits. This source comprises some 10 percent of total construction volume. In addition, the kolkhozes are building more than five percent of the housing with their own funds.

Moreover, the state is encouraging cooperative residential construction. In the last eight years, this source has put into operation 45 million square meters of urban and rural space.

IN THE LAST THREE FIVE-YEAR PLANS ALONE, ALMOST 450 MILLION SQUARE METERS OF SPACE HAVE BEEN PUT INTO USE IN RURAL AREAS. FOR THE THREE YEARS OF THE 11TH FIVE-YEAR PLAN, THIS INDEX COMPRISES OVER 95 MILLION SQUARE METERS. IT IS NOTEWORTHY THAT THE CONSTRUCTION OF HOUSES OF THE COUNTRY TYPE IS STEADILY INCREASING.

One of the main tasks facing rural builders is not only to increase the pace of housing construction for sovkhozes and kolkhozes, but also to lower its cost price, to ensure economy in material and labor expenditures, and to speed up the shift of housing construction to progressive series of houses. The preconditions for this are that there are now more than 160 plans for rural houses.

By 1990, the volume of housing, and especially of country houses with outbuildings, put into use annually must grow considerably.

Today, Soviet man needs not simply housing, but a modern, well-built apartment. And with every year, the needs of the workers for well-built housing are being satisfied more and more fully. Thus, in the RSFSR Residential Code that has been in effect since the beginning of this year, an increase in the norm for housing space for one person to 12 square meters (instead of the previous nine) was confirmed.

Residential construction has been broadly expanded in all union republics, krais, oblasts and cities. Its highest pace is in regions of intense industrial development and in cities with rapidly developing economies. Thus, at the start of last year, the housing fund of Karaganda had increased 17.7 times in comparison with the prewar fund, that of Krivoy Rog 13.6 times, that of Dushanbe 12.7 times, that of Krasnoyarsk 11.5 times, and that of Barnaul 12 times.

The housing fund of the Moscow city ispolkom reached 143 million square meters at the start of this year, and has quintupled in comparison with 1940.

IN THE LAST TWO DECADES (1964-1983), 369 NEW TOWNS HAVE BEEN FORMED IN THE USSR. AMONG THEM ARE NADYM, NOVYY URENGOY, NOYABR'SKIY IN TYUMEN OBLAST, UST'-ILIMSK IN IRKUTSK OBLAST, LESOSIBIRSK, SAYANOGORSK IN KRASNOYARSK KRAY, AMURSK IN KHABAROVSK KRAY, YELIZOVO IN KAMCHATKA OBLAST, NERYUNGRI IN YAKUTIYA, KARAKUL' IN KIRGIZIA, AND MANY OTHERS.

The industrialization of construction and the development of large-panel house-building have permitted raising labor productivity and shortening the time for erection of buildings. The shift to the new standard plans has permitted considerable improvement in the comforts of residences.

In the past year, the overwhelming majority of houses were built according to standard plans. More than half of them are according to the new ones, i.e., exactly according to those that also envisage more convenient planning and modern finishing of apartments.

In recent years, the sanitary-hygenic conditions in apartments being built have improved, and their area has increased. During the 8th Five-Year Plan (1966-1970), the average space of an apartment under construction was 45.8 square meters, whereas in the 11th (1981-1983) it is 53.9. At the same time, the ratio of useable space to residential space has risen from 1.4 to 1.6, i.e., the space for kitchens, corridors, and useful room has considerably increased.

The portion of houses with all conveniences has grown considerably. In 1982, 91 percent of urban residential houses were equipped with running water, sewer, electric light, gas or electric stoves, hot water, bathrooms, etc.

In rural areas, still insufficient number of such houses are being built. However, as a result of steps taken by the party and the government directed toward improving residential conditions in the villages, more attention has begun to be devoted to the erection in the villages of well-built residential houses for one or two families, with garden plots and outbuildings.

It is fully understandable that increasing good-quality construction of apartments and expanding the size of living space and secondary room could not but be reflected in the cost of residential construction. Even in spite of the broad introduction of large-panel house-building, which is somewhat cheaper than brick, the cost of a square meter of space on the average has grown considerably: in 1975, it cost an average of 157 rubles, and in 1982, 198 rubles. The state pays for these expenditures, since the increased cost in many respects is connected with raising the comfort of housing and improving the architectural appearance of cities.

The more people move to new, well-built apartments, the more discriminatingly they look around them. How convenient will it be to live in a new microrayon, far from school, kindergarten, nurseries? Are there stores and service shops at hand? Are there boulevards, stadiums, and movie theaters in the

neighborhood? There is an insistent need to build the suburbs of cities in such a way that at the same time housing is being put into service, all projects relating to socio-cultural life will also be ready. The new system of planning and construction on the basis of urban development complexes fully meets this need. The building of the Olympic Village, which has now become the capital's model housing region, and the construction of the complexes in Krylatskiy and Vorontsov may serve as standards for such a resolution. Some 60 model complexes are being erected in the Ukraine.

Thus, the program of residential construction for the third year of the 11th Five-Year Plan has been successfully fulfilled. The main thing now is not to lose the pace achieved.

Despite the gigantic dimensions of residential construction, it is still not possible to satisfy the need of a growing population fully. All families have not yet been provided with individual apartments, and some live in poorly-built houses. But much is also being done here. In the past three years alone, 374,500 people have been resettled from such houses into apartments with all the conveniences.

The decree of the CPSU Central Committee "On Measures for Ensuring the Fulfillment of Plans for Construction of Residential Houses and Social Service Projects" must play an important part in overcoming existing inadequate and achieving high new boundaries. As a result of the measures taken, in the past year the material-technological supply of house-builders has been considerably improved, the rhythm of bringing projects into use has gradually begun to even out, and the building of cities is becoming more complex.

Much still remains to be done so that the country's house-building conveyor will function rhythmically throughout the entire year and the quality of the houses erected will remain invariably high. And although the portion of housing completed in the last quarter of the past year somewhat declined, it still remains very high: in many towns, up to 40 percent of the total volume.

In the fourth year of the five-year plan, we are scheduled to erect residential houses with an area of 109 million square meters. By making use of the high labor development called forth in the country by the decisions of the 26th party Congress and the recent Plenums of the CPSU Central Committee, and by preparing for the elections to the USSR Supreme Soviet, we must direct the efforts of the house-builders to unconditional fulfillment and overfulfillment of the planned tasks for 1984 and for the five-year plan as a whole.

Average Dimensions of Apartments Put into Service
(in square meters of area)

	1973	1982
All apartments constructed	48.5	53.9
including:		
those built with state funds:	48.4	53.5
One-room	31.0	33.5
Two-room	45.5	49.8
Three-room	59.3	64.9
Four-room or more	72.1	81.6

HOUSING CONSTRUCTION

MULTISTORY RESIDENTIAL HOUSING IN AREAS OF SEISMIC ACTIVITY

Alma-Ata NARODNOYE KHOZYAYSTVO KAZAKHSTANA in Russian No 1, Jan 84 pp 53-54

[Article by G. Iskhodzhanova, architect: "Spatial-Planning Decisions and the Seismic Stability of Buildings"]

[Text] The problem of improving building seismic stability is especially acute in Kazakhstan's southern regions. Multistory construction here is substantially delayed because of technical difficulties and large material outlays for earthquake proofing measures. However, it isn't reasonable to reject these buildings. Such housing has a number of important advantages compared to low buildings. These include the possibilities of dense layouts for microregions, the multi-functional use of the space in multistory buildings, the creation of expressive silhouettes and scales in city planning, etc. In short, multistory residences are an essential type of building for any large city. However, there is still a very important problem in the development of reliable and most economical types of housing in which high seismic stability is attained by the simplest means.

Of primary importance is the rational and goal directed selection of spatial planning solutions for multistory housing which will improve its various characteristics.

We will examine more closely how spatial planning decisions for multistory housing can help in solving the main problem -- that of increasing seismic stability while reducing outlays for such measures. As is known, in calculating the effect of seismic forces on a building, the application and distribution of loads is calculated along vertical and horizontal dimensions. Consequently, the problem of assuring building stability in a zone with tectonic forces is to a considerable extent solved through a rational solution to the plan and vertical profile of the future building.

As is known, a residence has numerous partitions, walls, horizontal and vertical utility ducts. The span between walls is small. Therefore the problem of residential seismic stability involves the creation of spatial stability in a structure with small cells. One of the methods is to limit the horizontal strain on the building. The use of this method makes it possible to avoid installing antiseismic joints. Extended variable story layouts should be avoided for the same reason.

Form is a major factor in multistory building seismic stability. It should not be selected arbitrarily, but should have a geometry supported by mathematical analysis in order to easily calculate loads.

Searches for buildings which are stable with respect to horizontal seismic forces can be the basis for a creative solution to the design of multistory, H-shaped, cross, box or sickle shaped buildings.

Staircases, elevator and ventilator shafts can act as rigidity elements. Nine and 12 story ferroconcrete housing being erected in Alma-Ata can serve as examples of symmetric, compact planning solutions.

Multistory housing is divided by interapartment walls which can be quite thick, depending upon sound insulation conditions. It is therefore logical to combine such walls with rigidity walls as was done for the series 158 large panel buildings and the 12 story monolithic building on Oktyabrskaya Ulitsa in Alma-Ata.

Experience in seismic resistant construction of multistory housing in Alma-Ata deserves detailed study from the perspective of selecting optimal spatial planning decisions. This should be general and specific with regard to various design systems under seismic conditions. A structure's stability increases as the center of gravity drops. This condition is observed in the selection of pyramid shaped buildings. However, it should not always be understood literally and "pyramid" buildings constructed. In a residence, longitudinal and transverse walls and frames and stabilizing shafts can be used to create this form.

Apartments can be distributed by demographic characteristics in pyramid shaped multistory residences. Large apartments or terrace shaped residences in the lower sections are intended for families with many children, while small families get smaller apartments in the upper sections.

A residence with public facilities in the upper sections and a small number of partitions and a correspondingly smaller mass can also have better antiseismic characteristics than a traditional structure.

The selection of components by weight is another important architectural method affecting the seismic stability of a multistory building. It is commonly known that if other conditions are equal a lighter building will resist tectonic forces better than a heavier one.

In summing up, one can state that the very selection of a planning solution to a multistory residence can assist in effectively improving its seismic stability and supplement anti-seismic design measures. It is therefore advisable for architects to henceforth design special types of multistory housing for seismic regions, taking into consideration the possibilities for improving seismic stability by architectural methods.

The properly selected architectural solution to a residential plan, its profile and the functional use of its space make it possible to create a structure which responds best in an earthquake and will permit the rational use of structural elements and construction materials.

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BRIEFS

NEW EXCAVATORS--The first 20 model EO-3323 machines were built a year ago at the Kalinin excavator plant. They were sent to construction projects in Belorussia, Bashkiriya and the Non-chernozem Zone of the RSFSR. Construction workers have appreciated the new machines' worth, the plant has not received a single complaint. P. Pankratov, the plant director, said: "This is a second generation machine and has advantages over its successors. Bucket capacity has increased from .50 to .65 cubic meters. The hydraulic system pressure has been increased by one-third, making it possible to increase the machine's productivity by 25 percent. Overall excavator weight has been reduced by one-half ton. Another advantage of the machine is that it is equipped with a bulldozer blade which, in addition to its primary purpose, can also serve as an additional support. The machine has a total of 21 types of attachments. [By L. Rudskiy] [Text] [Moscow STROITEL'NAYA GAZETA in Russian 21 Mar 84 p 2] 11574

NEW FOUNDATION TECHNIQUE--Engineers at the Novosibirskpromstroy [Novosibirsk Industrial Construction] Trust have proposed an effective method for building foundations. A special ram mounted on an excavator is used to make a two meter trench in the foundation pit. The trench is filled with gravel, concrete is poured and the foundation is ready for columns. This simple technique reduces foundation laying time by a factor of four. In addition, 100 kg of metal and 2 cubic meters of concrete are saved at each foundation. [By Yu. Yevsikov] [Text] [Moscow STROITEL'NAYA GAZETA in Russian 28 Mar 84 p 3] 11574

MOBILE CONCRETE MIXER--The Mak-Beton [Mobile concrete mixing complex] has already been demonstrated at the VDNKh SSSR [Exhibition for the Achievements of the National Economy of the USSR] and was given a gold medal. It is built by the BSSR Ministry of Industrial Construction's Stroy mash Production Association in Minsk. It is intended for the automatic mixing of concrete and other mixtures directly at construction sites. Working according to a program, Mak-Beton can prepare more than 20 cubic meters of concrete per hour. Its dimensions are 18 x 3.2 x 9.5 meters and it weighs 25 tons. It is serviced by one operator. It can be hauled at 50 km per hour with the help of a KRAZ-258 truck. The entire complex is mounted on a welded frame. Water, cement, inert ingredients and additives are added by a VDB-250 batcher, while aggregates are delivered by conveyor belt. The mix is then loaded into ready mix trucks or dump trucks. The electrical system permits the unit to operate in three ways: automatic, remote controlled from a control panel and on-site (during repair and adjustment). Experience in its use at construction sites in Belorussia shows that it is safe and considerably reduces manual labor for mixing. The economic effect from its use is about 25,000 rubles. For more detailed information about the Mak-Beton mobile unit write the Stroy mash Production Association at: 220033, Minsk, 33 ul. Rybalko, 26. [Text] [Moscow ZHILISHCHNOYE STROITEL'STVO in Russian No 2, Feb 84 p 24] 11574

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CONSTRUCTION METHODS AND MATERIALS

EXPOSITION HIGHLIGHTS NEW CONSTRUCTION TECHNIQUES

Moscow ZHILISHCHNOYE STROITEL'STVO in Russian No 2, Feb 84 p 24

[Unattributed article: "Advanced Techniques Adopted"]

[Text] At the USSR VDNKh [All-Union Exhibit of Achievements of the National Economy] one can get acquainted with materials telling of newly developed structural components and technology lines the adoption of which makes it possible to produce a substantial economic effect, boost labor productivity, and improve construction quality.

Thus, the Stroyindustriya Special Design-Technology Bureau has worked out a technology line for the manufacture of three-layer claydite-concrete exterior wall panels of the "bublik" [unidentified] type. The line consists of a form preparation conveyor, a concrete pourer with vibrator attachment, a smoothing machine, a traverse tipper, two trolleys, and a 15-ton overhead crane.

The line covers a span of 18 by 120 meters. It has a productivity of 18,000 cubic meters of products per year, with an anticipated economic effect of 15,000 rubles. The use of "bublik"-type panels will reduce reinforcement steel consumption compared with the II-04 series panels.

The Novocheboksarsk Remstroy Mash Plant has made an experimental model of a semiautomated line for the manufacture of two-branch frames made of rebar steel of grades A1, A11, and B1. The line consists of an MT-1222 contact welding machine for simultaneous welding of two intersections of reinforcement rods, benches for collating the lengthwise rods, a straight-feed mechanism for the cross rod, a step-by-step frame transport mechanism, a receiving-shunting bench, and a reel stand.

The line's control system makes it possible to set the modes for each operation and automatic execution of the frame manufacturing operations. The only manual operation is the preliminary layout of the billets of the lengthwise reinforcement rods. The economic effect from the adoption of one line comes to 1,700 rubles.

The Ulyanovsk Residential Construction Combine of the Main Ulyanovsk Construction Administration has put into operation a line for the manufacture of reinforcement fabrics with cross rods whose butt ends are displaced with respect to each other. The line consists of an ATMS-14 x 75-7 machine and a set of custom-made equipment. It includes a reel stand, a straight-feed

roller mechanism, a loop accumulator, a mechanism to feed the wire into the electrode zone, a welding machine, a moveable pendulum stop, and two cutting mechanisms for the cross rods. The annual economic effect from adopting the line comes to 5,000 rubles.

The Cheboksarsk Ferroconcrete Products Plant No 9 has conducted experiments on the adoption of stamp-welded insert parts for ferroconcrete structures of the II-04 series. Compared with insert parts manufactured by manual arc and submerged arc welding, stamp-welded parts are more economical, because metal savings range from 35 to 40 percent and welding labor costs are reduced by 15 to 20 percent.

The Vyborg Elektroiinstrument Plant of Trust No 45 of the Territorial Main Administration for Construction in the Western Regions of the RSFSR has installed a rolling mill to produce sections of metal partition frames. The Main Leningrad Construction Materials Administration has undertaken the manufacture of lightweight gypsum-board sheets. Experience has shown that the use of the new partitions provides a substantial economic effect.

Residential Construction Combine No 1 of the Main Volga-Vyatka Construction Administration has developed a universal grip with an eccentric clamp for the installation of balcony slabs. It has a hoisting capacity of 630 kilograms and weighs about 7 kilograms. The eccentric clamp, combined with an installation loop for a sling, makes it possible to attach the grip to the item rapidly during hoisting and installation, thus making it possible to reduce the amount of manual labor considerably. The annual economic effect from adopting the grip comes to 1,500 rubles.

For sealing the joints between window or door frames and exterior wall panels, the large-panel residential construction plants and construction sites of Latvia are making successful use of a UNPP unit developed and manufactured in the Latvian Construction Ministry's Orgtekhstroy Trust. The unit consists of a machine for preparing and dosing the sealing components, a stand with a bracket to hold the hoses, and a gun injector. The unit operates at a rate of 0.4 kilograms per minute. Joints are sealed using Ripor T_n , the composition of which was developed by the Latvian Academy of Sciences Wood Chemistry Institute. The technology of sealing joints using the UNPP unit has been adopted at the Riga Large-Panel Residential Construction Plant and the Riga Residential Construction Combine.

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6854

CSO: 1821/114

CONSTRUCTION METHODS AND MATERIALS

BRIEFS

RETICULATED DOME--The covering of the building is in the form of a reticulated shell having a shape close to that of an oblate ellipsoid. The diameter of the shell at the base is 231.7 meters. The height of the building at the center is 118.4 meters. The shell has a variable surface curvature and represents a core network with cells in the form of isosceles triangles whose bases are arranged on horizontal rings. The design calls for pin-bearing support of the framework of the shell on 83 columnar fittings.

Welded to the outer hoops of the frame is a membrane made of 10KhNDP-grade rolled steel 1.5 millimeters thick. The membrane can take wind and snow stresses and at the same time forms a protective structure. From the inside, panels of a suspended ceiling are attached to the shafts of the frame; the ceiling performs four functions: screening of the interior space, sound insulation, heat insulation, and fire protection. In the top of the dome is a technology room 34 meters in diameter and with a floor area of 900 square meters. The main design components are protected by authors' certificates Nos 590414, 618520, 706510, 765476, and 935577. For information write to: 117393, Moscow, ul. Arkhitektora Vlasova, 49, TsNIIProyektstal'konstruktsiya imeni Mel'nikova Gosstroya SSSR. [Text] [Moscow STROITEL'NAYA GAZETA in Russian 24 Feb 84 p 3] 6854

CONCRETE ADDITIVE SAVES MATERIALS--The Ferroconcrete Products Plant in Shevchenko has begun to operate a unit which makes concrete with minimal consumption of cement and the water that is so scarce in the desert. The quality of the concrete mix is improved by the use of a mixture of naphthenic acid salts produced in oil refining. Mangyshlak's rapidly developing economy requires increasing amounts of construction materials every year. The concrete mix has to be made using the brackish local water, which entails more cement consumption. The addition of just 700 grams of the naphthenic acid

salts mixture saves 40 kilograms of cement and 20 liters of water per cubic meter of mix. The concrete remains plastic longer and does not lose its properties in heat or cold, and it becomes strong faster after being poured. [Text] [Moscow STROITEL'NAYA GAZETA in Russian 4 Apr 84 p 2] 6854

WALL MATERIALS MACHINERY PLANT--The Shkapovneftestroy Trust has started the construction of the latest building in the RSFSR Construction Materials Industry's Belebey Experimental Mechanical Plant, which specializes in spare parts and custom-made equipment for wall materials enterprises. The new building, which is scheduled to begin operation by the end of the five-year plan, will house a mechanical assembly shop and a forge. Putting them into operation will double the output of the products, in particular stamps and presses for making hollow silica brick and gear for imported presses and forms for large-sized silica-concrete panels. [Text] [Moscow STROITEL'NAYA GAZETA in Russian 11 Apr 84 p 3] 6854

LAVSAN BITUMEN FOR RURAL ROADS--As the volume of highway construction increases, there is a constantly rising demand for bitumen, rubble, standard gravel-sand mixtures, and sand. This difficult problem can be solved through the use of additional material resources provided by wastes from lavsan production. SOVETSKAYA BELORUSSIYA reports that the Mogilev Khimvolokno Production Association alone annually burns or dumps at least 26,000 tons of wastes which constitute a valuable raw material for the production of binding bitumens. The polymer product lavsan that is produced from these wastes can be used in building rural roads. One example is the experimental coating on an experimental site in Minsk at the corner of Gorkiy and Surganov streets. Mixing the product with bitumen yields a fundamentally new road binder--lavsan bitumen. Unlike other binders (oil, shale, or tar) it provides a high-strength water- and frost-resistant concrete even when poor-grade stone materials are used. Mass production of lavsan bitumen requires an installation equipped with a unit for trapping the methanol which is formed in processing the wastes and which pollutes the environment. The methanol can be used as a fuel to heat the lavsan wastes. The amounts of wastes in the Khimvolokno Production Association make it possible to produce 52,000 tons of lavsan bitumen yearly, enough to build 410 kilometers of roadbeds and lay a bottom paving layer 13 centimeters thick. This will serve to increase stone reserves by at least 690 cubic meters per year through the use of substandard sand and gravel mixtures, yielding an annual economic effect of over 2 million rubles. [Text] [Moscow ZHILISHCHNOYE I KOMMUNAL'NOYE KHOZYAYSTVO in Russian No 3, Nov 84 p 16] [COPYRIGHT: Stroyizdat, 1984] 6854

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